

CLAIMS

We claim:

- 1 1. A polish pad comprising:
2 a base layer; and
3 an ion exchange layer disposed on the base layer.
- 1 2. The polish pad of claim 1, wherein the ion exchange layer comprises ion
2 exchange resin beads
- 1 3. The polish pad of claim 1, wherein the ion exchange layer comprises ground ion
2 exchange resin beads.
- 1 4. The polish pad of claim 2, wherein the ion exchange beads are pressed into the
2 ion exchange layer.
- 1 5. The polish pad of claim 3, wherein the ground ion exchange beads are pressed
2 into the ion exchange layer.
- 1 6. The polish pad of claim 1, further comprising a base support layer.
- 1 7. The polish pad of claim 1, wherein the ion exchange layer is patterned.
- 1 8. The polish pad of claim 6, wherein the base support layer is patterned.

1 9. The polish pad of claim 8, wherein the base support layer and the ion exchange
2 layer is patterned.

1 10. The polish pad of claim 1, wherein the ion exchange layer binds cations.

1 11. The polish pad of claim 10, wherein the ion exchange layer binds copper
2 cations.

1 12. An ion exchange polish pad comprising:
2 a base layer; and
3 a resin layer having ion exchange material embedded therein.

1 13. The ion exchange polish pad of claim 12, wherein the ion exchange material is
2 ion exchange resin beads.

1 14. The ion exchange polish pad of claim 12, wherein the ion exchange material is
2 ion exchange resin powder.

1 15. The ion exchange polish pad of claim 12, wherein the resin layer is patterned.

1 16. The ion exchange polish pad of claim 12, wherein the base layer is patterned.

1 17. The ion exchange polish pad of claim 12, wherein the polishing layer and the
2 support layer is patterned.

1 18. A method of fabricating a polishing pad comprising:

2 selecting a base material;

3 applying a resin over the base material;

4 pressing an ion exchange material into the resin;

5 removing excess ion exchange material; and

6 planing a top surface of the ion exchange polish pad.

1 19. The method of claim 18, wherein the ion exchange resin is ion exchange resin
2 beads.

1 20. The method of claim 18, wherein the ion exchange resin is ground ion exchange
2 resin beads.

1 21. A method of fabricating an ion exchange polish pad comprising:

2 selecting a support layer;

3 coating the support layer with a first resin layer;

4 partially curing the first resin layer;

5 fragmenting ion exchange beads to a powder;

6 mixing the fragmented ion exchange beads with a second resin to obtain a resin
7 mixture;

8 coating the first resin layer with a first resin mixture layer; and

9 curing the ion exchange polish pad.

1 22. The method of fabricating an ion exchange polish pad as in claim 21, further
2 comprising patterning the first resin mixture layer.

1 23. The method of fabricating an ion exchange polish pad as in claim 21, further
2 comprising patterning the first resin layer before coating with the first resin mixture.

1 24. The method of fabricating an ion exchange polish pad as in claim 21, further
2 comprising:

3 patterning the first resin mixture layer; and

4 coating the first resin mixture layer with a second resin mixture layer.

1 25. A polishing apparatus comprising:

2 a polishing platform;

3 an ion exchange polish pad operatively coupled to the polishing platform; and

4 a polishing head coupled to a semiconductor substrate, wherein the polishing
5 head positions the semiconductor substrate such that the semiconductor substrate
6 contacts the ion exchange polish pad.

1 26. The apparatus of claim 25, wherein the polishing apparatus further comprises a
2 chemical slurry applicator.

1 27. The apparatus of claim 25, wherein the ion exchange polish pad is a belt.

1 28. A method comprising:

2 combining an ion exchange material and at least one resin component;

3 polymerizing the resin components with the ion exchange material; and

4 forming an ion exchange polish pad or belt comprising the resin and the ion
5 exchange material.

1 29. The method of claim 28, wherein the ion exchange material is an ion exchange
2 bead.

1 30. The method of claim 28, wherein the ion exchange material is a functional
2 group.

1 31. The method of claim 30, wherein the functional group is coupled to polymer
2 component.

1 32. The method of claim 31, wherein the polymer component is a pre-polymer.